REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

I. **The Status of All Claims**

Claims 10-22 are pending. Claims 10 and 17 are independent claims. This amendment amends claim 10 and adds new dependent claims 19-22. The specification fully supports the changes to claim 10 and new claims 19-22. Therefore, this amendment adds no new matter.

II. **The Rejections of Claims 10, 11, and 16-18 Under 35 USC 102(b) as Anticipated by USP 5,583,848 to Glitho ("Glitho")**

A. **Claim 10 - "automatically withholding a transfer of said signaling messages ...upon a positive check result outcome of said checking step"**

1. **The Recitation of Claim 10**

Claim 10, as amended, recites "...checking ...a presence of a loop... by...a routing test and a real time method; and *automatically withholding* a transfer of said *signaling messages* via a pertinent linkset upon a positive check result outcome of said checking step." Claim 10; emphasis added.

2. **The Applicant's Disclosure Supporting Claim 10**

The following passages of the specification of this application, for example, support the recitation of claim 1:

> Figures 2 and 3 shows methods for parting a loop.
>
> The present invention particularly reveals how, given real-time recognition of loops having a length of more than 2 and/or upon recognition of loops by the MRVT, the *loops can be broken by automatic, real-time, protocol-compatible methods* that are simple to realize. Accordingly, the operators can promptly take corrective measures.
>
> Furthermore, it is noteworthy to state that given the *possible loops* that were detected by the MRVT or a real-time method for a linkset, to check for loops prior to using the automatic correction measures (the MRVT, namely, does not supply any statements whether a possible loop is also being employed at the time and, under certain circumstances, the real-time method cannot make any statements about the destination to which a possible loop is present). This check ensues by *sending otherwise unemployed MTP network management messages* to the destinations that can be reached (according to the routing) via the pertinent linkset. When such *test messages return to the STP*, these messages are detected by comparing the OPC contained in the message to the point code of the STP, and

loop(s) are thus detected. Accordingly, correction measures can remain limited to loops being currently selected.

This check with the assistance of test messages is useful when it is applied in only one STP since all loops that run through this STP can be detected. The *check method can also always remain active.*

Another possibility is based on making the initiation of correction measures dependent on the evaluation of the (relative) probability that the possible loop could be selected. These information can be made available by the MRVT in the form of priorities of the individual paths constituting the loop.

When a loop to a destination X is detected in an STP A by the MRVT or by real-time methods, one can proceed in the following way for *breaking the loop*:

a) *Breaking the loop "downstream"* in that *the specific departing path to this destination is blocked* in the routing table in A. This step can, in particular, be applied when other paths proceeding from A to X are also available. Accordingly, it is recommended to also check the route selected as an alternative for the occurrence of a loop. Although the lack of a detection of a loop does not guarantee that there is not some other loop that does not contain A, there is at least a probability that the problem has been eliminated.

b) Alternatively, or if, for example, there no longer happens to be an alternate (loop-free) route proceeding from A, the *loop can be broken "upstream"*, i.e. to the preceding STP B on the loop, in that *A sends B a transfer prohibited message* with respect to X. In response, *B will reroute or stop the traffic to X.* Since B will subsequently and periodically review the availability of the route to X via A with what are referred to as route set messages, it must be assured that A does not answer these messages with a transfer allowed, since B could otherwise re-close the loops. [Specification page 2 line 20 to page 3 line 28; emphasis added.]

a. **The Applicant's Claimed "...checking..." By a Routing Test and By a Real-time Method**

i. **"Routing Test" - MRVT (MTP Route Verification Test)**

The specification of this application discloses, for example, that "[t]he standard (Q.753, Q.754) defines another solution of the problem, known as the MTP route verification test (MRVT). This test checks all possible paths in an MTP network between two given points for correctness, including the absence of loops." Specification page 2 lines 1-4.

The specification of this application also discloses, for example, that "[t]his check ensues by sending *otherwise unemployed MTP network management messages* to the destinations that

can be reached (according to the routing) via the pertinent linkset." Specification page 2 line 31 to page 3 line 2; emphasis added.

The specification of this application further discloses, for example, that "[t]his check with the assistance of test messages is useful when it is applied in only one STP since all loops that run through this STP can be detected. The *check method can also always remain active.*" Specification page 3 lines 6-8; emphasis added.

Clearly, the MTP route verification test claimed by the applicant runs in a *live* SS7 network using "otherwise unemployed MTP network management messages." and "can also always remain active." Therefore, one of ordinary skill in the art would recognize that the "routing test" (MTP route verification test) claimed by the applicant runs *on-line*, that is, in real-time in an real SS7 network.

ii. **Real-time Method**

In support of the applicant's claimed "...checking...," as recited in claim 10, the specification of this application discloses, for example, that "[t]his problem can be solved by a *real-time method* that recognizes the possibility of a loop, for example, due to a *lasting overload* on a linkset." Specification page 1 lines 27-28; emphasis added.

One of ordinary skill in the art would recognize that "a lasting overload" means "an abnormally high rate of SS7 message activity on a SS7 linkset lasting for an extended period of time." One of ordinary skill in the art would also recognize that such an "overload" may be caused by "looping" SS7 signaling messages and that, therefore, the SS7 linkset involved may form part of a loop. One of ordinary skill in the art would recognize that measurements used to detect an "overload" would be done in real-time on a *live* SS7 system. For example, one of ordinary skill in the art would recognize that counting the number of messages traversing a linkset per unit time in order to detect an overload is a real-time measurement that is done while the SS7 network is actually *up and running*. Therefore, one of ordinary skill in the art would recognize that real-time tests performed to detect an "overload" are done *on-line*.

b. **The Applicant's Routing Test and Real-time Method Enable "automatically withholding ...signaling messages"**

Because the applicant's routing test (MPT route verification test) and real-time method run *on-line* in an real SS7 network, the applicant's system is able to break loops by

"automatically withholding ...signaling messages...upon a positive check result outcome of said checking," as recited in claim 10. One of ordinary skill in the art would recognize that the limitation defined by the recitation "automatically" means "without operator action as soon as a loop is detected." One of ordinary skill in the art would also recognize that the limitation defined by the recitation "withholding ...signaling messages" means "halting transmission of looping SS7 messages."

3. The Citations From Glitho Relied Upon By the Examiner

In rejecting claim 10, the examiner relies upon United States patent 5,583,848 to Glitho ("Glitho") at column 6 lines 3-47, which states that:

> ...This MRVT process is conducted in the operation system and as a result *no live signals or messages are sent through the SS7 signalling network* from the start node to the destination node. [Glitho at column 6 lines 3-6; emphasis added.]

The examiner further relies upon Glitho at column 6 lines 19-47, which states that:

> In the second phase or step, the MRVT algorithm is run in the operation system on the collected data. The algorithm will detect the fault "unknown destination" at node 14. It should be understood that while this specific fault can be detected during collection of routing data, some other fault conditions cannot be detected at this stage. Accordingly, *it is important to first collect the routing data and then simulate the MRVT test on the data collected "live" from the network in the operation system.*
>
> Referring to FIG. 5, there is shown a table having routing information which results in looping of the message. To better understand the effect of the routing information shown in Table 5 on the communication of the message within the network, reference may be had to FIG. 6 which shows the message tree for the routing information of FIG. 5. From FIG. 6, a sampling of the operation system contains a sample of the tables in similar fashion as that described with respect to FIG. 3. However, it should be noted that in the left most path node 18 has a loop to node 14. Thus, it would be possible in some instances for a message traveling in through the routing data of this Table to be connected into a channel where the information would just loop within the channel and never make it to the destination node. With respect to node 20, it is also seen that node 20 has an alternative link set that defines a path that can result in a message not making it to the destination but being returned to node 18. This creates another potential loop in the routing of a message through the network. Once the data is collected from the routing tables, *the MRVT algorithm is run in the operation system 50* and it detects all loops in the network. [Glitho at column 6 lines 19-47; emphasis added.]

The applicant respectfully submits that, as explained below, the above cited passages from Glitho not only do not teach or suggest the subject matter defined by claim 10, but actually *teach away* from the subject matter defined by claim 10.

4. **Glitho Does Not Teach or Suggest "automatically withholding a transfer of said signaling messages ...upon a positive check result outcome of said checking step"**

The applicant respectfully submits that the citations to Glitho relied upon by the examiner in rejecting claim 10 do not teach or suggest "automatically withholding a transfer of said signaling messages ...upon a positive check result outcome of said checking step," as recited in claim 10. The system taught by Glitho must operate *off-line*. Therefore, the system taught by Glitho *cannot* perform the method defined by claim 10. Therefore, Glitho does not teach or suggest the subject matter defined by claim 10.

a. **Glitho's Operation System Only Operates Off-line**

In contrast to the applicant's system, the operation system taught by Glitho runs *off-line*, as disclosed by Glitho at column 2 line 65 to column 3 line 11, which states that:

> In accordance with an aspect of the present invention there is provided a method for auditing routing information in a packet switching network. The method involves utilizing the telecommunications management network (TMN) to *sample and collect* through a general purpose management interface routing table information at nodes in the operating network for a test message sent from a test initiator node to a final destination node through intermediate nodes. The telecommunications management network subsequently *runs verification tests* on the collected routing table information *apart from the packet switching network.* This method has the advantage that the *verification test is not run on the network* and still tests through simulation actual table routing information used by nodes in the network. [Glitho at column 2 line 65 to column 3 line 11; emphasis added.]

Clearly, one of ordinary skill in the art would recognize that "...runs...apart from the packet switching network..." and "is not run on the network" means "runs off-line."

The contrast between the applicant's system, as claimed in claim 10 and disclosed in the applicant's specification, is further demonstrated by the following passage from Glitho at column 5 lines 15-22, which states that:

> In accordance with the present invention, the *operation system 50 is adapted to conduct routing verification tests* of the nodes in the network in the

> SS7 signalling network. At a *predetermined instant in time*, the operation system will conduct a test for a chosen initiation node and a chosen destination node. The operation system will first *sample at a predetermined time* the routing table information in the initiation node 12. Upon receipt of this information, the operation system will *sample the routing table* information in the one or more nodes connected to the primary link set and any alternative nodes connected through alternative link sets from the start up node 12. [Glitho at column 5 lines 15-22; emphasis added.]

Thus, Glitho's disclosed operation system only runs a routing test at a "predetermined time," that is, not continuously. Therefore, one of ordinary skill in the art would conclude that Glitho's operation system runs off-line.

In addition to the passages from Glitho noted above, the contrast between the applicant's system,as claimed in claim 10 and disclosed in the applicant's specification, is further demonstrated by the following passage from Glitho at column 5 line 66 to column 6 line 6, which states that:

> The operation system operates in a fashion to collect the routing table information. The MRVT algorithm as specified today is then run in the operation system using the routing data collected from the network....This *MRVT process is conducted in the operation system* and as a result *no live signals or messages are sent through the SS7 signalling network* from the start node to the destination node. [Glitho at column 5 line 66 to column 6 line 6; emphasis added.]

Because the MRVT process disclosed by Glitho above runs only in Glitho's operation system and not in the SS7 network, one of ordinary skill in the art would recognize that Glitho's method runs *off-line*, in contrast to the applicant's *on-line* method as claimed in claim 10.

b. **Glitho's Off-line Operation System Cannot "Automatically" Withhold Signaling Messages**

Because the loop detection system disclosed by Glitho operates *off-line*, one of ordinary skill in the art would recognize that Glitho's system cannot break SS7 signaling loops automatically in a live SS7 network by "automatically witholding signalling messages," as defined by claim 10. That is, Glithos's system cannot break a SS7 signaling loop soon as a potential loop is detected and without operator intervention. This is because breaking loops with Glitho's system requires modifiying the routing tables of the live SS7 network in order to correct a detected potential routing error. There is no teaching or suggestion in Glitho that Glitho's off-

line "operation system 50" can *modify* SS7 routing tables (in order to break signaling loops) without operator intervention. Glitho only discloses that operation system 50 can *sample* SS7 routing tables.

Therefore, one of ordinary skill in the art would recognize that Glitho's system cannot automatically break loops by "automatically withholding a transfer of said signaling messages ...upon a positive check result outcome of said checking step," as recited in claim 10. Therefore, Glitho does not teach or suggest the subject matter of claim 10. Therefore, claim 10 patentably defines over Glitho. Therefore, the rejection of claim 10 under 35 USC 102 is improper and should be withdrawn.

B. **Claims 11, 16, 19 and 20 - Dependency On an Allowable Claim**

Dependent claims 11, 16, 19, and 20 depend from independent claim 10. Therefore, claims 11, 16, 19, and 20 patentably define over Glitho for at least the reasons given above for claim 10. Therefore, the rejections of claims 11 and 16 are improper and should be withdrawn.

C. **Claim 17 - "...when a positive check result outcome is obtained transfer of signaling messages via pertinent linksets are automatically withheld."**

Claim 17 recites:

> a checker for detection of at least a loop or a possibility of a presence of said loop over a departing linkset to a destination signaling point, said checker utilizes at least one of a *routing test and a real time method*, wherein when a positive check result outcome is obtained *transfer of signaling messages* via pertinent linksets are *automatically withheld*. [Claim 17; emphasis added.]

Therefore, claim 17 patentably defines over Glitho for at least the reasons given above for claim 10. Therefore, the rejection of claim 17 is improper and should be withdrawn.

D. **Claims 18, 21, and 22 - Dependency On an Allowable Claim**

Dependent claims 18, 21, and 22 depend from independent claim 17. Therefore, claims 18, 21, and 22 patentably define over Glitho for at least the reasons given above for claim 10. Therefore, the rejection of claim 18 is improper and should be withdrawn.

III. **The Rejections of Claims 12 and 13 Under 35 USC 103(a) as Obvious Based Upon Glitho in View of USP 6,044,402 to Jacobson et al ("Jacobson")**

A. **Dependency On an Allowable Claim**

Dependent claims 12 and 13 depend from independent claim 10. Therefore, claims 12 and 13 patentably define over Glitho for at least the reasons given above for claim 10. Therefore, the rejections of claims 12 and 13 are improper and should be withdrawn.

B. **No *Prima Facie* Rejection**

There is no teaching in Glitho or Jacobson that suggests "...*automatically withholding* a transfer of said *signaling messages*...," recited by claim 10 and defined in this application. Because Glitho in combination with Jacobson does not teach or suggest the subject matter of claim 1, the examiner has not made a proper *prima facie* rejection under 35 USC 103(a) of claims 12 and 13. Therefore, the rejections of claims 12 and 13 are improper and should be withdrawn.

IV. **The Rejections of Claims 14 and 15 Under 35 USC 103(a) as Obvious Based Upon Glitho in View of USP 5,014,262 to Harshavardhana et al ("Harshavardhana")**

A. **Dependency On an Allowable Claim**

Dependent claims 14 and 15 depend from independent claim 10. Therefore, claims 14 and 15 patentably define over Glitho for at least the reasons given above for claim 10. Therefore, the rejections of claims 14 and 15 under 35 USC 103(a) are improper and should be withdrawn.

B. **No *Prima Facie* Rejection**

There is no teaching in Glitho or Jacobson that suggests "...*automatically withholding* a transfer of said *signaling messages*...," recited by claim 10 and defined in this application. Because Glitho in combination with Jacobson does not teach or suggest the subject matter of claim 1, the examiner has not made a proper *prima facie* rejection under 35 USC 103(a) of claims 14 and 15. Therefore, the rejections of claims 14 and 15 under 35 USC 103(a) are improper and should be withdrawn.

V. **Closure**

Should the examiner have any questions, he is urged to contact the undersigned at 703-415-0012.

Respectfully Submitted,

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